

To clarify the record, Applicants request that a supplemental PTO-892 be issued correctly reciting the two following articles:

1) EE times, "Diminutive package holds Xicor E²PROM", <http://www.eetimes.com/news/98/1022news/xicor.html>, 8/17/98; and

2) Universal Instruments Corporation, Binghamton, New York, 13902-0825, "Chip Scale Package Technology Wafer Scale Package Issues", http://www.uic.com/wcms/WCMS.nsf/index/White_Papers_7.html, 7/17/00.

Objection under 35 U.S.C. 132

The Examiner states:

The amendment filed 4-25-2 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. **The added material which is not supported by the original disclosure is the paragraph at page 24, lines 19-24.**

Applicant is required to cancel the new matter in the reply to this Office Action. (Office Action, page 2, emphasis added.)

Applicants note that in the Application as filed at page 24, lines 19-24, it was set forth:

This application is related to Glenn et al., co-filed and commonly assigned U.S. Patent Application Serial No. [ATTORNEY DOCKET NO. G0030M] entitled "FLIP CHIP ON GLASS IMAGE SENSOR PACKAGE FABRICATION METHOD," which is herein incorporated by reference in its entirety.

Applicants note that on November 15, 2000, the filing date of the present application, the serial number for the Application cited at page 24, lines 19-24 was unavailable. In the Amendment filed on April 17, 2002, the Attorney Docket No., i.e., "[ATTORNEY DOCKET NO. G0030M]" was simply replaced with

the corresponding Serial Number, i.e., --09/714,682-- in accordance with the USPTO's long-standing policy to cite pending Applications by serial number. Accordingly, no new matter was added.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of this objection.

Claims 1, 4-15, 20 and 27 are novel over Takase et al.

The Examiner states:

... Takase teaches the following: 1. A structure comprising: an image sensor 16 having an active area and a bond pad on a first surface of said image sensor; **a window 1 having an interior surface** and an exterior surface opposite said interior surface; said interior surface of said window facing said first surface of said image sensor, the window having **an area of said interior surface** that is less than the area of said first surface of said image sensor; **the area of said interior surface** of said window **that is less than** the area of said first surface of said image sensor being less than the area of said first surface of said image sensor ... (Office Action, page 4, emphasis added.)

Accordingly, the Examiner asserts that "the window having **an area** of said interior surface that is less than the area of said first surface of said image sensor". Applicants note that the Examiner has failed to callout where Takase et al. teaches or suggests that **the area, i.e. the total area**, of the "interior surface" is "less than the area of said first surface of said image sensor".

Further, the Examiner asserts:

... Takase teaches that the size of the structure is a result effective variable; namely, that reduced structure size is desirable. (Office Action, page 7.)

However, Applicants respectfully submit that Takase et al. teaches away from the area of the interior surface of the "window 1" being less than the area of the first surface of the image sensor since this would defeat to the ability to connect

the external circuit to the external connection terminals 30 (see FIG. 4) formed on the interior surface, i.e., the first primary surface, of the "window 1".

More particularly, Takase et al. teaches:

With reference to **the first primary surface**, it is noticed that **external connection terminals 30** of the same number as the number of aggregated electrodes 3 are provided thereon in the area corresponding to one end of the aggregated electrode 3 together **being the periphery of the optical circuit board**. Each of the **external connection terminals 30** has a pad-like form to **be used for connection with the external circuit**, ... (Col. 17, lines 8-15, emphasis added.)

Thus, assuming for argument, if the area of the interior surface, i.e., the first primary surface, of the window 1 was less than the area of the first surface of the image sensor then the external connection terminals 30 would be covered by the image sensor. This would defeat the ability to connect the external circuit to the external connection terminals 30.

For at least the above reasons, Takase et al. does not teach or suggest a structure comprising:

an image sensor having an active area and a bond pad on a first surface of said image sensor;

a window having an interior surface and an exterior surface opposite said interior surface, said interior surface of said window facing said first surface of said image sensor, **the area of said interior surface of said window being less than the area of said first surface of said image sensor**; and

an electrically conductive via extending through said window from said interior surface to said exterior surface of said window, said via being electrically connected to said bond pad,

as recited in Claim 1, emphasis added. Accordingly, Claim 1 is allowable over Takase et al. Claims 4-15, 20, which depend from Claim 1, are allowable for at least the same reasons as Claim 1.

For similar reasons, Takase et al. does not teach or suggest an image sensor package comprising:

an image sensor having a bond pad on a first surface of said image sensor;

a window having an interior surface, the area of said interior surface of said window being less than the area of said first surface of said image sensor;

an electrically conductive interior trace on said interior surface of said window; and

an electrically conductive bump electrically connecting said bond pad to said interior trace,

as recited in Claim 27, emphasis added. Accordingly, Claim 27 is allowable over Takase et al.

The Examiner further states:

Applicant's amendment and remarks filed 9-25-2 have been fully considered, and are addressed in the rejection supra and are further addressed infra. **Applicant contends that the term "chip size" is limited in scope to the disclosure of the term in Glenn (6291884), "the resulting BGA, LGA or LCC package is 'chip size,' i.e., has an area substantially equal to that of the chip itself." This contention is respectfully traversed because ... (Office Action, page 13, emphasis added.)**

Applicants do not necessarily agree or disagree with the Examiner's remark. However, Applicants note that the term "chip size" does not appear in independent Claims 1 or 27.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of this rejection.

Claim 3 is patentable over Takase et al., and in the alternative, over Takase et al. in combination with Naito et al.

Initially, Applicants respectfully submit that the Examiner cites Naito et al. in error at page 7 of the Office Action as "(6011320)", emphasis added. However, Naito et al. is properly cited in the PTO-892, Notice of References Cited, as US-6,011,310. Thus, Applicants simply call the Examiner's attention to the erroneous citation at page 7 of the Office Action to clarify the record.

As discussed above, Claim 1 is allowable over Takase et al. Claim 3, which depends from Claim 1, is allowable over Takase et al. for at least the same reasons as Claim 1.

With regards to Naito et al., the Examiner states that "Naito teaches a chip size package" (Office Action, page 8). However, this does not cure the previously described deficiency of Takase et al. Accordingly, Claim 3 is allowable over Takase et al. in combination with Naito et al.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of this rejection.

Claims 21-23, 26, 28 and 29 are patentable over Takase et al. in combination with Farnworth.

As discussed above, Claim 1 is allowable over Takase et al. Claim 28, which depends from Claim 1, is allowable over Takase et al. for at least the same reasons as Claim 1.

With regards to Farnworth, the Examiner states that "Farnworth teaches interconnection balls 12A, 12C" (Office Action, page 11). However, this does not cure the previously described deficiencies of Takase et al. Accordingly, Claim 28 is allowable over Takase et al. in combination with Farnworth.

For similar reasons, Takase et al. in combination with Farnworth does not teach or suggest an image sensor package comprising:

- an image sensor having an active area and bond pads on a first surface of said image sensor;
- a window having an interior surface and mounted to said image sensor, the area of said interior surface of said window being less than the area of said first surface of said image sensor;**

- a plurality of electrically conductive interior traces on an interior surface of said window;

- a plurality of electrically conductive bumps electrically and physically connecting said bond pads to said interior traces;

- a plurality of electrically conductive vias extending from said interior surface of said window to an exterior surface of said window, said vias being electrically connected to said interior traces;

- a plurality of electrically conductive exterior traces on said exterior surface of said window, said

exterior traces being electrically connected to said vias;

a plurality of electrically conductive pads on said exterior traces; and

a plurality of electrically conductive interconnection balls on said electrically conductive pads,

as recited in Claim 21. Accordingly, Claim 21 is allowable over Takase et al. in combination with Farnworth. Claims 22-23, 26, which depend from Claim 21, are allowable for at least the same reasons as Claim 21.

For similar reasons, Takase et al. in combination with Farnworth does not teach or suggest an image sensor package comprising:

an image sensor having an active area and bond pads on a first surface of said image sensor;

a window mounted to said image sensor, **the area of said window in a plane parallel to said first surface of said image sensor being less than the area of said first surface of said image sensor;**

a plurality of electrically conductive interior traces on an interior surface of said window;

a plurality of electrically conductive bumps electrically and physically connecting said bond pads to said interior traces;

a plurality of electrically conductive vias extending from said interior surface of said window to an exterior surface of said window, said vias being electrically connected to said interior traces;

a plurality of electrically conductive exterior traces on said exterior surface of said window, said exterior traces being electrically connected to said vias;

a plurality of electrically conductive pads on said exterior traces; and

a plurality of electrically conductive interconnection balls on said electrically conductive pads,

as recited in Claim 29. Accordingly, Claim 29 is allowable over Takase et al. in combination with Farnworth.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of this rejection.

Claims 16-19 are patentable over Takase et al. in combination with Glenn (5949655).

As discussed above, Claim 1 is allowable over Takase et al. Claims 16-19, which depend from Claim 1, are allowable over Takase et al. for at least the same reasons as Claim 1.

With regards to Glenn, the Examiner states that "Glenn teaches wherein a bead 22, and an image sensor 10 define a sealed cavity 19" (Office Action, page 12). However, this does not cure the previously described deficiencies of Takase et al.

Accordingly, Claims 16-19 are allowable over Takase et al. in combination with Glenn.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of this rejection.

Claims 24-25 are patentable over Takase et al. in combination with Farnworth and Glenn (5949655).

As discussed above, Claim 21 is allowable over Takase et al. in combination with Farnworth. Claims 24-25, which depend from Claim 21, are allowable over Takase et al. in combination with Farnworth for at least the same reasons as Claim 21.

With regards to Glenn, the Examiner states that "Glenn teaches an image sensor package wherein a bead 22 has sides coplanar with sides of an image sensor 10" (Office Action, page 12). However, this does not cure the previously described deficiencies of Takase et al. in combination with Farnworth. Accordingly, Claims 24-25 are allowable over Takase et al. in combination with Farnworth and Glenn.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of this rejection.

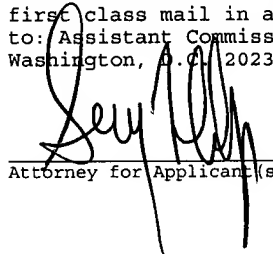
CONCLUSION

Claims 1, 3-29 are pending in the application. For the foregoing reasons, Applicants respectfully request allowance of all pending claims. If the Examiner has any questions relating

to the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicant(s).

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on January 8, 2003.

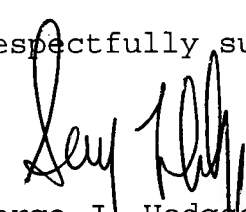


Attorney for Applicant(s)

January 8, 2003

Date of Signature

Respectfully submitted,


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